

Notice of Allowability

Application No.

10/654,551

Examiner

David A Reifsnyder

Applicant(s)

ANDERSON ET AL.

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communication filed on September 3, 2003 and Examiner's Interview of December 8, 2004.
2. ☒ The allowed claim(s) is/are 1-30 (renumbered claims 1-18, 20-22, 19, 23, 24, 26-30 and 25, respectively).
3. ☒ The drawings filed on 03 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles R Rutherford on December 8, 2004.

In the telephone interview of December 8, 2004 the following things were agreed.

In the specification it was agreed to amend page 7, line 26 so that "tubular pipe 126" is changed to be ---tubular pipe 142---.

To overcome antecedent basis problems with claim 1; it was agreed to amend claim 1, by changing; "the edges" to ---edges--- in line 6.

To overcome antecedent basis problems with claim 6; it was agreed to amend claim 6, by changing; "the end portions" to ---end portions--- and "the edges" to ---edges--- in line 6; and "said box tubular member" to ---said tubular member--- in line 10.

To overcome antecedent basis problems with claim 23; it was agreed to amend claim 23, by changing; "the end portions" to ---end portions--- in line 7; and "the edges" to ---edges--- in line 8.

The application has been amended as follows:

In The Specification

The paragraph on page 7 which includes lines 25-32 has been replaced with the following amended paragraph:

The magnetic bar frame 48 further includes a tubular pipe 142 having a longitudinal axis which is coincidental with the axis 124 of the box tube 120. The tubular pipe 142 extends through the box tube 120 and has end portions 144 extending beyond the end surfaces 122 of the tubular member 120. Stop elements 140 extend over the ends of the pipe 120 and abut the end faces 122 of the box tube 120 as shown in Fig. 8. The outer end portions 144 of the tubular pipe 142 are attached to the endless conveyor chains 44 and 46 in order to suspend the frames from the conveyor chains.

In The Claims

1. (currently amended) A magnetic separator comprising:

an elongated tank having a bottom wall, a pair of side walls connected to said bottom wall, a front wall connected to said bottom and side walls at one end of said tank and a ramp wall at the other end of said tank extending upwardly from said bottom wall and in a direction away from said front wall to form an upwardly and outwardly inclined ramp having the edges thereof connected to said side walls;

an inlet provided in a wall of said tank for directing liquids containing ferrous particles and other particulate into said tank;

an outlet provided in a wall of said tank where the liquid after treatment exits said tank;

a track system mounted in and extending lengthwise of said tank including a lower tank track, an upper tank track spaced above said lower tank track, a lower ramp track and an upper ramp track spaced above said lower ramp track;

a pair of transversely spaced apart endless conveyor chains movably mounted in said tank and guided by said track system, said conveyor chains describing an endless loop within said tank;

a plurality of longitudinally spaced magnetic frames in said tank, each frame extending across said tank between said side walls and having an upper end and a lower end, with said upper end of each frame suspended from said conveyor chains;

each of said frames carrying a series of parallel magnetic rods which are spaced apart to form magnetic gaps and through which the liquid passes as the conveyor chains and frames traverse said tank, with the ferrous particles in the liquid being attracted to and deposited on said magnetic rods;

the lower end of each frame being provided with a scraper edge that contacts the bottom and ramp walls of the tank when the frame is traversing the lower tracks to scrape the particulate from the bottom and ramp walls and move the particulate towards the other end of said tank where it is discharged;

each frame as it leaves said lower tank track and enters said lower ramp track closely follows the inclination of said ramp as the frame travels up said ramp;

wiper blades located near the upper end of said ramp, each frame as it is moved by said conveyor chains up said ramp engaging a trip lever which opens said wiper blades;

each frame as it is moved by said conveyor chains after the top thereof has passed said trip lever moving through the opening between said wiper blades, said wiper blades thereafter closing on the magnetic rods of said frame to wipe and remove the collected ferrous particulate from the magnetic rods;

the lower end of each frame as it is moved by said conveyor chains and approaches said wiping blades causing a protrusion thereon to make contact with said trip lever resulting in the wiper blades opening to thereby allow the lower end thereof to pass through the openings; and

a pivoted switch track which is normally closed interposed between said upper and lower ramp tracks, said switch track opening when contacted by each frame as it is swung upwards and forward, said switch track after each frame has cleared the opening falling back and forcing it to follow said upper ramp and tank tracks.

6. (currently amended) The magnetic separator as defined in claim 1, wherein said magnetic frames each comprises an elongate tubular member having a pair of outwardly facing end surfaces, said tubular member forming the upper end of said frame and having a longitudinally extending axis, an elongated tube support spaced from and parallel to said tubular member and forming the lower end of said frame, a pair of longitudinally spaced side supports near the end portions of said tubular member and

tube support, said side support having the edges thereof connected to said tubular member and to said side supports, said series of magnetic rods comprising spaced tubes carried by said tube supports between said side supports; and a plurality of bar magnets and pole pieces stacked in end-to-end abutting relationship in each of said tubes between said ~~box~~-tubular members and said tube support.

23. (currently amended) A magnetic bar frame comprising:

(a) an elongated tubular member forming the upper end of said frame and having a pair of outwardly facing end surfaces, said tubular member having a longitudinally extending axis;

(b) an elongated tube support spaced from and arranged parallel to said tubular member and forming the lower end of said frame;

(c) a pair of longitudinally spaced side supports near the end surfaces of said tubular member and tube support, said side supports having the edges thereof connected to said tubular member and to said tube support;

(d) a plurality of longitudinally spaced tubes carried by said tube support between said side supports; and

(e) a plurality of bar magnets and pole pieces stacked in end-to-end abutting relationship in each of said tubes between said tubular member and said tube support;

REASONS FOR ALLOWANCE

The main reason for the allowance of claims 1-22 is the instantly claimed magnetic separator comprising:

an elongated tank having a bottom wall, a pair of side walls connected to said bottom wall, a front wall connected to said bottom and side walls at one end of said tank and a ramp wall at the other end of said tank extending upwardly from said bottom wall and in a direction away from said front wall to form an upwardly and outwardly inclined ramp having edges thereof connected to said side walls;

an inlet provided in a wall of said tank for directing liquids containing ferrous particles and other particulate into said tank;

an outlet provided in a wall of said tank where the liquid after treatment exits said tank;

a track system mounted in and extending lengthwise of said tank including a lower tank track, an upper tank track spaced above said lower tank track, a lower ramp track and an upper ramp track spaced above said lower ramp track;

a pair of transversely spaced apart endless conveyor chains movably mounted in said tank and guided by said track system, said conveyor chains describing an endless loop within said tank;

a plurality of longitudinally spaced magnetic frames in said tank, each frame extending across said tank between said side walls and having an upper end and a lower end, with said upper end of each frame suspended from said conveyor chains;

each of said frames carrying a series of parallel magnetic rods which are spaced apart to form magnetic gaps and through which the liquid passes as the conveyor chains and frames traverse said tank, with the ferrous particles in the liquid being attracted to and deposited on said magnetic rods;

the lower end of each frame being provided with a scraper edge that contacts the bottom and ramp walls of the tank when the frame is traversing the lower tracks to scrape the particulate from the bottom and ramp walls and move the particulate towards the other end of said tank where it is discharged;

each frame as it leaves said lower tank track and enters said lower ramp track closely follows the inclination of said ramp as the frame travels up said ramp;

wiper blades located near the upper end of said ramp, each frame as it is moved by said conveyor chains up said ramp engaging a trip lever which opens said wiper blades;

each frame as it is moved by said conveyor chains after the top thereof has passed said trip lever moving through the opening between said wiper blades, said wiper blades thereafter closing on the magnetic rods of said frame to wipe and remove the collected ferrous particulate from the magnetic rods;

the lower end of each frame as it is moved by said conveyor chains and approaches said wiping blades causing a protrusion thereon to make contact with said trip lever resulting in the wiper blades opening to thereby allow the lower end thereof to pass through the openings; and

a pivoted switch track which is normally closed interposed between said upper and lower ramp tracks, said switch track opening when contacted by each frame as it is swung upwards and forward, said switch track after each frame has cleared the opening falling back and forcing it to follow said upper ramp and tank tracks.

The main reason for the allowance of claims 23-30 is the instantly claimed magnetic bar frame comprising:

(a) an elongated tubular member forming the upper end of said frame and having a pair of outwardly facing end surfaces, said tubular member having a longitudinally extending axis;

(b) an elongated tube support spaced from and arranged parallel to said tubular member and forming the lower end of said frame;

(c) a pair of longitudinally spaced side supports near the end portions of said tubular member and tube support, said side supports having the edges thereof connected to said tubular member and to said tube support;

(d) a plurality of longitudinally spaced tubes carried by said tube support between said side supports; and

(e) a plurality of bar magnets and pole pieces stacked in end-to-end abutting relationship in each of said tubes between said tubular member and said tube support.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bratten 6,277,276 B1 who discloses an magnetic separator apparatus comprising a tank containing a liquid contaminated with metal particles; a series of permanently magnetized bars arranged side by side with intervening spaces therebetween, said bars being interconnected together to form a train of magnetized extending about a closed path disposed at least partly inside the tank; and a scrapper mechanism comprising scrapper blocks slidably mounted on said bars.

Bratten 6,638,430 B2 who discloses an magnetic separator apparatus comprising a tank containing a liquid contaminated with metal particles; a train of parallel spaced magnetized bars connected together to form a closed loop disposed inside the tank, each of the magnetized bars comprising a nonmagnetic stainless steel tube containing a stack of ceramic magnets; and a scrapper mechanism comprising scrapper blocks slidably mounted on said bars.

Regarding claims 23-30; Schuchardt et al. who discloses a floatable magnetic frame for removing metallic debris from a tank comprising:

(a) an elongated tubular member (13) forming the upper end of said frame and having a pair of outwardly facing end surfaces, said tubular member having a longitudinally extending axis;

(b) an elongated tube support (13) spaced from and arranged parallel to said tubular member and forming the lower end of said frame;

(c) a pair of longitudinally spaced side supports (13) near the end portions of said tubular member and tube support;

(d) a plurality of longitudinally spaced tubes (19) carried by said tube support between said side supports; and

e) a plurality of cylindrical magnets (23) without pole pieces in each of said tubes between said tubular member and said tube support.


Regarding claims 23-30; Schuchardt et al. fails to disclose or fairly suggest that the edges of his side supports are connected to his tubular member and tube support. Furthermore, regarding claims 23-30; Schuchardt et al. also fails to disclose or fairly suggest that that his plurality of magnets are bar magnets with pole pieces and that the plurality of bar magnets and pole pieces are stacked in end-to-end abutting relationship in each of said tubes between said tubular member and said tube support.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Reifsnyder whose telephone number is (571) 272-1145. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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DAR